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THE U.S. STRATEGIC MOBILITY POSTURE -- A CRITICAL FACTOR
TO SUPPORT NATIONAL SECURITY OBJECTIVES

AN INDIVIDUAL STUDY PROJECT

by

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U.S. Army War College
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TABLE OF CONTENTS

	Page
INTRODUCTION.	1
OVERVIEW.	3
STRATEGIC MOBILITY.	5
NATIONAL MOBILITY REQUIREMENTS.	7
IMPACT OF 1992 MOBILITY REQUIREMENTS STUDY.	9
AIRLIFT	9
SEALIFT	14
PRE-POSITIONING	25
INTERMODAL OPERATIONS	28
CONCLUSION.	34
ENDNOTES.	37
BIBLIOGRAPHY.	40

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LIST OF ILLUSTRATIONS

	Page
Figure 1. FY 1999 Airlift Assets	11
Figure 2. FY 1999 Strategic Sealift Assets	16

INTRODUCTION

The United States is a nation which has always been greatly dependent on sea and air lines of communication to implement military strategy and pursue national objectives.

For over forty-five years, national military strategy was based on a major confrontation with the Soviet Union and the Warsaw Pact nations. The cornerstones of the national strategic mobility posture have been forward-deployed forces with pre-positioning of materiel configured in unit sets (POMCUS) and war reserves at sufficient levels to support an anticipated superpower conflict on the European continent.

In this period of geopolitical change and diminished threat, one of the primary principles of United States military strategy is changing; forward-stationed forces, at the levels of pre-Desert Shield/Storm, represent commitments that can no longer be justified in light of Soviet reductions and the recently signed Conventional Forces in Europe (CFE) Treaty. Additionally, budgetary limitations and changing investment patterns have become primary factors in developing national military strategy.

The realities of a diminished potential for conflict in Europe and reduction in forward-deployed forces around the world have resulted in the emergence of a new military strategy of CONUS-based forces and reduced forward-stationed forces. Rapid deployment and force projection will be the primary means for demonstrating national resolve.

The Gulf War represents the new kind of regional threat that the United States will face in the future. "Our strategy demands we be able to move men and materiel to the scene of a crisis at a pace and in numbers sufficient to field an overwhelming force."¹

As national interests and objectives change, strategic mobility has become an integral part in the development of the National Security Strategy of the United States. As stated in the 1991 National Security Strategy of the United States:

In this new era, therefore, the ability to project our power will underpin our strategy more than ever. We must be able to deploy substantial forces and sustain them in parts of the world where prepositioning of equipment will not always be feasible, where adequate bases may not be available (at least before a crisis) and where there is a less developed industrial base and infrastructure to support our forces once they have arrived.²

The requirement for response to regional contingencies around the world, the reduction of forward-deployed forces, and the concept of CONUS-based forces reinforce the national dependence on the strategic mobility triad of airlift, sealift, and pre-positioning. Any degradation of strategic mobility will assuredly affect national military strategy and national security strategy. "The key to effective strategic mobility for the United States lies in the proper integration and coordination of its component elements -- strategic airlift, strategic sealift, and prepositioning. Not only are all three components individually necessary, they must also be in proper balance with regard to each other."³ Past studies have uniformly supported

the precept that strategic mobility is inextricably interwoven into the national security and military strategy of the United States.

This study will review the strategic mobility posture of the United States and assess the impact of the 1992 Mobility Requirements Study. Additionally, it will address the ability of the strategic mobility triad to support regional contingencies.

OVERVIEW

Since World War II, the United States has experienced a steady decline in its strategic mobility capability. Much of this degradation can be attributed to the steady decline of sealift capacity, if one considers overall tonnage. However, strategic mobility in the twentieth century is a combination of multi-faceted means and modes of transportation which have suffered from neglect, apathy, and bureaucratic infighting within the United States. Recognizing the potential critical shortfall in strategic mobility, Congress tasked the Department of Defense to determine future mobility requirements for the Armed Forces and to develop an integrated mobility plan (Section 909, National Defense Authorization Act for FY 1991).⁴

Operations Desert Shield/Storm graphically reaffirmed the need for an enhanced strategic mobility posture for the United

States to rapidly respond to contingencies around the world on a massive scale. During Operations Desert Shield/Storm, the United States and its coalition partners had ample time to mobilize and position forces and equipment in the theater of operation; future contingencies may not afford the United States time to systematically deploy and employ forces in a theater without challenge.

Strategic mobility operations in support of Operations Desert Shield/Storm were extraordinarily successful. However, the level of effort required to ensure success again reaffirmed the long-standing consensus of leaders in the military, private industry, and Congress concerning the woeful condition of the strategic mobility posture of the United States. Irrespective of the mobility successes of the war, there remains a demonstrated need for continued improvements in the areas of strategic airlift, strategic sealift, and the nation's overall intermodal operations capability. These areas suffer from varying degrees of inadequacy in their ability to support national objectives and military strategy for future contingencies around the world.

Describing the strategic outlook for the United States, the 1992 Mobility Requirements Study states:

The United States is rapidly adapting to a changed global security environment. The new defense orientation is primarily regional, requiring the ability to respond quickly and effectively to unpredictable challenges to US interests....Forward-deployed forces enhance our ability to respond quickly to threats in some parts of the Pacific or Europe, but areas exist where other formidable threats may require

equally urgent response. Future US forces will meet the challenge through increased flexibility in planning, training, and employment, provided they have the capability to deploy to an area of potential crisis in sufficient time, with a proper mix of combat and support forces.⁵

In light of recent events around the world such as the end of the Cold War, the demise of the Soviet Union, and the loss of bases in the Philippines, the importance of a viable and responsive strategic mobility capability is even more obvious. These events, coupled with budgetary constraints, have precipitated a rapid reduction in the number of forward-deployed forces and a considerable downsizing of the military as a whole. As such, the national military focus is being reshaped with a reduced forward stationing of forces and CONUS-based forces that are capable of rapid deployment and demonstrating force projection. This focus makes the strategic mobility an intricate cog in the development of national policy and military strategy.

STRATEGIC MOBILITY

Strategic mobility can be defined as the ability to rapidly deploy and sustain combat power (forces and equipment) in response to regional crises or contingencies around the world.

As a result of Operations Desert Shield/Storm and Just Cause, strategic mobility has become a linchpin in the national security strategy of the United States. That has not, however,

always been the universal position of the senior leadership in the Department of Defense. In an article from ARMY Magazine, December 1990, L. Edgar Prina writes of Defense Secretary Richard B. Cheney's reluctance to spend \$375 million for a new fast sealift ship program while admitting, "I am concerned about our lift capabilities."⁶ Additionally, Jack Katzen, formerly the Assistant Secretary of Defense for Production and Logistics, told Congress that a Pentagon study in progress "may very well find that, rather than a shortage with respect to sealift, we may have more than we need."⁷

Clearly, Operations Desert Shield/Storm have caused drastic changes in the way the leadership views strategic mobility. In his Annual Report to the President and the Congress, dated January 1991, Secretary Cheney validates the critical role of strategic mobility by stating:

The potential for contingencies in regions outside Europe continues to grow. As a result, strategic mobility takes on increased importance. The Defense Department will continue to place a high priority on the maintenance and improvement of U.S. strategic mobility forces.⁸

Given this new found support for strategic mobility, major challenges lie ahead for the components of the triad and intermodal operations, a subcomponent that is crucial to the success of any strategic mobility operation. No matter how much strategic lift is available, there must be adequate infrastructure, intratheater movement, and distribution capability to move resources to the ports of embarkation. As

stated in the 1992 Mobility Requirements Study, "To support national interests, deployment capability must increase through expanded investment in sealift, pre-positioning, and transportation infrastructure in the United States and in sustained investment in airlift."

In essence, in order for the national strategic mobility posture to achieve the goals consistent with national security strategy, sustained investment for all components and subcomponents of the triad must remain a top priority. The capital outlays will be substantial, but the strategic lift systems across the board are necessary to support the revised National Security Strategy of the United States.

NATIONAL MOBILITY REQUIREMENTS

General Bernard W. Rogers, Chief of Staff, U.S. Army, in his 1978 Message to Congress, captured the essence of total mobility requirements when he said:

The credibility of our conventional deterrence hangs on our ability to deploy and sustain our forces worldwide. As the largest users of this nation's strategic lift, we in the Army view strategic deployment from a total systems perspective. That is, one segment has as much importance as any other. And the systems are complex, embracing men, facilities, trucks, trains, airplanes, ships and ports. Ships and planes alone will not do the job. We also need facilities to receive equipment and personnel once deployed and speed their movement to the battle area.

A breakdown anywhere ripples throughout the entire system.¹⁰

While the message is dated, it has become axiomatic throughout the Department of Defense, the Congress, and industry. With international change, budgetary constraints, and reduction in forces, security interests that shape defense strategy have remained constant. It is recognized that, as National Security Strategy and National Military Strategy change from global Soviet containment to orientation on regional contingencies and a CONUS-based force, intertheater and intratheater strategic mobility capability is even more crucial to the execution of these strategies.

"In the emerging post-Cold War world, international relations promise to be more complicated, more volatile and less predictable...we remain the country to whom others turn when in distress."¹¹ As such, the strategic mobility triad and its subcomponents must be capable to deploy forces with speed and sustain them in parts of the world where existing infrastructures are not sufficient to support the force and pre-positioning is not practical.

The debate over strategic mobility now centers around provisions of the 1992 Mobility Requirements Study (MRS). The following section will assess the changes brought about by the MRS and how they impact on the components of the strategic mobility triad.

IMPACT OF THE 1992 MOBILITY REQUIREMENTS STUDY

Airlift

Airlift is, by far, the quickest and most flexible component of the strategic triad. It goes without saying that, "Airlift is an ideally suited mobility tool for an environment of uncertainty with widely dispersed potential flashpoints."¹²

Provisions of the 1992 Mobility Requirements Study have significantly changed the way airlift requirements are determined. With the changes to U.S. global security interests, a regional orientation to contingencies, and the willingness to accept risks in mobility planning, airlift requirements and availability will vary as scenarios change. Strategic airlift provides the United States the capability to rapidly project combat power worldwide in support of national security interests. The total strategic airlift capability includes the combined air assets of the military and the commercial air carriers under the provisions of the Civil Reserve Air Fleet (CRAF).

CRAF is a partnership program between the Department of Defense (DOD) and the civilian airline industry whereby the airlines contractually commit their aircraft, crews, and infrastructure to DOD use during emergency conditions. In turn, these airlines are offered portions of DOD's peacetime contractual business. CRAF elements support DOD passenger,

cargo, and aeromedical evacuation requirements and can be activated in three stages.¹³

The level of activation of CRAF is determined by the kind of crisis in which the United States may be involved. The MRS lists the levels of CRAF activation as:

- * Stage I: Committed Expansion. This stage provides assets to meet early contingency deployments and can be activated by USCINTRANS.

- * Stage II: Airlift Emergency. This is an additional airlift expansion program in support of a national security crisis, short of a declared emergency. The Secretary of Defense has the authority to activate this stage.

- * Stage III: National Emergency. The Secretary of Defense may issue the order to activate this stage in support of a defense-oriented national emergency declared by the President or Congress.¹⁴

Figure 1 displays the availability of commercial aircraft, by type, that become resources at the various stages of activation.¹⁵

Operations Desert Shield/Storm marked the first activation of any level of CRAF since its origin in 1951. Normal planning anticipated 5 percent of the cargo to be moved by air; final results showed this figure to be approximately 15 percent. As such, military assets and volunteer commercial assets were quickly overwhelmed, resulting in the first-time activation of CRAF-Stage I on 18 August 1990. As the build-up continued, and to ensure continued priority movement of critical cargo, CRAF-Stage II was activated on 17 January 1991.

Figure 1. FY 1999 Airlift Assets (CRAF as of 1 Oct 91)

	AIRCRAFT TYPE								
					Long Range International (B747 Equivalents) (Note 1)				
	C-5	KC-10	C-141	C-17	WBP	NBP	WBC	NBC	TOTAL PAX/Cargo
Military (PAA) (Note 2)	109	57	152	80					
CRAF I					18	0	13	10	41 18/23
CRAF II					73	0	22	19	114 73/41
CRAF III					245	11	77	73	406 256/150

Note 1: WBP = wide-body passenger
 NBP = narrow-body passenger
 WBC = wide-body cargo
 NBC = narrow-body cargo

Note 2: PAA = primary aircraft authorization. 23 KC-10 aircraft are considered in the cargo role (remainder allocated to air refueling). For MRS analysis, 10 KC-10s were used as mobility assets prior to D-day and none thereafter based on recent Operation DESERT STORM experience. 80 of 102 PAA C-17s in program delivered by FY 1999. CRAF is expected to be restructured soon and will include more cargo and aeromedical aircraft in Stage II. A projected decrease in overall CRAF participation because of airline bankruptcies and fleet changes is also expected.

By all standards, every aspect of airlift operations during the war was a resounding success. It should be noted, however, that there were growing pains. Full integration of every phase of airlift operations is not a simple task. While CRAF proved to be responsive and proficient, it lacked the flexibility of military airlift. Operational problems experienced by commercial

aircarriers, such as unfamiliarity with the handling of hazardous cargos, the lack of proper charts to assist in approaches to unfamiliar airfields, the absence of some communications equipment to interface with their military counterparts, and the inability to react to special wartime waivers to enhance mission capability, contributed to unique and special challenges faced by the CRAF. While military pilots' average age was 30 years, commercial pilots' average age was 55.¹⁶ It is understandable that commercial air carriers had some difficulty adjusting to waivers of operational flying hour restrictions.

Past national airlift requirements were based on the results of the Congressionally Mandated Mobility Study (CMMS), 1981. It was a result of the Department of Defense Authorization Act of 1981 which required the Secretary of Defense to determine the mix of airlift, sealift, and pre-positioning that would provide an acceptable military response to contingencies in areas of potential conflict throughout the 1980s and into 1990.¹⁷ The results of this study established 66 million ton miles per day (MTM/D) as the baseline for airlift mobility planning. It gives a notional capability of moving one ton 66 million miles in a given day.

The MRS focuses on ton miles in a different manner for mobility planning. It strikes a balance between requirements, confidence in mobility goals (risks), and costs. The National Defense Strategy recognizes the importance of ton miles and

knowing the national capacity at full mobilization. With the political changes in Europe, major troop reductions as a result of the Conventional Forces in Europe Treaty, and budgetary constraints, airlift capability (as viewed in ton miles) has been slowed to maintain current levels of capability. This decision was based on a reduced need for airlift forces to Europe and the reduced likelihood of a multi-front conflict between the U.S. and the Soviet Union.¹⁸

The United States currently has approximately 48 MTM/D when fully mobilized. This includes approximately 18 MTM/D capability from CRAF. Airlift capability is projected to remain near the current level through FY 1995 and then to increase gradually to 51 MTM/D by FY 1997. This modest growth reflects the projected delivery of C-17 aircraft at rates that exceed planned C-141 retirements.¹⁹ Again, while ton miles are viewed differently in the 1992 MRS, it remains an integral element of mobility planning and the assessment of airlift capability; ton miles will not dictate mobility requirements and force packages. Force packages determine mobility requirements and ton miles are the tool to view overall capability based on the force package and final mobility requirements. The changes in airlift mobility planning do not lessen its importance as an integral component in the strategic mobility triad. They do, however, reflect a National Security Strategy and National Military Strategy that plans for CONUS-based forces capable of rapid deployment and new

mobility requirements that stress flexibility and integration of mobility assets to provide lift capability that is strategically prudent and fiscally responsible. The changing geopolitical climate of the world and a reduced threat resulted in the 1992 Mobility Requirements Study basing requirements on the acceptance of various levels of risks. But regardless of risks, adequate airlift resources must be available to support potential contingencies. The MRS integrates all components of the mobility triad and provides a balanced plan which provides capability to protect the nation's interests in a turbulent future.²⁰ No plan can be successfully executed without sufficient assets. Strategic airlift in the Gulf War, dedicated to a single theater of operations, guaranteed success. Simultaneous contingencies in different regions of the world will most assuredly overwhelm current airlift capability. The level of airlift operations during the Gulf War emphasized the importance of ongoing airlift enhancement programs such as the C-17 procurement and continued improvement of the CRAF program to ensure adequate strategic airlift capability for the future.

Sealift

Sealift is the second component of the strategic mobility triad. Traditionally, sealift has always been the workhorse of major deployment exercises; from World War II, the Korean Conflict, the Vietnam Conflict, and most recently, Operations

Desert Shield/Storm, sealift has been at the forefront of high volume cargo delivery to theaters of operation. The volume of ship traffic across the seas between the United States and the Persian Gulf during Operations Desert Shield/Storm was so great that the sealift operation was referred to as "the steel bridge". At its peak, some 132 ships were enroute to the Gulf, 44 were returning from the Gulf, and approximately 28 were being loaded and unloaded at various ports.²¹

According to Vice Admiral Francis Donovan, Commander, Military Sealift Command, sealift moved almost 3.5 million short tons of dry cargo and over 6 million tons of petroleum; this comprised 95 percent of all cargo transported.²² While the final percentages of actual cargo shipped by sea during Operations Desert Shield/Storm fluctuated, traditional planning calls for approximately 95 percent of military cargo to be moved to the theater by strategic sealift. The major role that strategic sealift plays in strategic mobility operations in times of crisis is clearly evident.

The U.S. strategic sealift capability is made up of ships in the Ready Reserve Force (RRF), Military Sealift Command (MSC)-controlled ships, U.S. flag, and Effective U.S.-Control Fleet (EUSC). See Figure 2.²³

Figure 2. FY 1999 Strategic Sealift Assets

SHIP TYPE (militarily useful dry cargo)								
FLEET/ TOTAL	FSS	RO/RO	BB	LASH /SB	T-ACS	CONT	OTH	WITH HOLD
RRF/ 104(81)		36(17)	49(49)	7(7)	12(8)			
MSC/ 19(16)	8(8)	4(4)	5(2)				2(2)	
US FLAG/ 71(134)		12(20)	0(11)	2(6)		38(77)	10(12)	9(8)
EUSC/ 14(29)		0(2)	8(15)	0(4)		6(8)		
FSS = Fast Sealift Ship RO/RO = Roll On/Roll Off Ship BB = Breakbulk LASH/SB = Lighterage Aboard Ship/Sea Barge T-ACS = Auxillary Crane Ship CONT = Container Ship OTH = Other								
Note: Numbers in parentheses indicate ships in 1991.								

Subcomponents of sealift are described as follows:

* RRF: The RRF is composed of government-owned, inactive commercial ships with military utility. They are maintained by the US Maritime Administration (MARAD) in 5-, 10-, or 20-day states of readiness to support deployment of military forces. Activation of these ships is controlled by the Navy.

* MSC-controlled fleet: This fleet consists of government-chartered dry cargo and tanker ships that provide point-to-point cargo service in areas not normally served by American companies. It includes two aviation logistic support ships designed to provide the necessary equipment and support for maintenance of a Marine Aircraft Group. The MSC also exercises control over the following assets:

-- Fast Sealift Ships (FSSs): These eight ships were purchased in the early 1980s and converted to a roll-on/roll-off (RO/RO) configuration for the rapid movement of Army equipment from CONUS. These ships are maintained in a 4-day reduced operating status (ROS).

-- Maritime Pre-positioning Ships (MPS): This program consists of 13 modified commercial vessels under long-term charter, operating in three squadrons (located at Diego Garcia, the western Atlantic, and Guam-Tinian). Each squadron carries unit equipment (UE) and sustainment for a Marine Expeditionary Brigade (MEB).

-- Afloat Pre-positioning Ships (APS): This force consists of eight dry cargo ships carrying Military Service equipment and sustainment for contingencies in Southwest Asia (SWA) as well as several tankers.

* US flag Merchant Marine Fleet: These oceangoing cargo ships are owned by US businesses and operated under US registry. They could be made available to support military operations via voluntary charter or through requisitioning after a Presidential declaration of national emergency. A number of these ships would not be available if requisitioning occurred because of economic and maintenance withholds. These withheld ships are in domestic service supplying Hawaii and Alaska. A small number of ships also would not be available because of maintenance cycles.

* Effective US-controlled fleet: This fleet includes US-owned, but foreign registered, ships under the flags of Panama, Honduras, Liberia, Republic of Marshall Islands, and the Bahamas. These ships are available after a Presidential declaration or proclamation of emergency; however, their availability is contingent, on a country-by-country basis, upon the nature of the crisis and the issues involved.²⁴

Strategic sealift is, indeed, critical to the execution of National Security Strategy and National Military Strategy, yet it faces difficult challenges in maintaining its viability as a part of the triad. Problems facing strategic sealift are: the age of the fleet, the precipitous decline of the U.S. Merchant Marine, and the inability of government and industry to develop a uniform plan to satisfy national sealift requirements. The 1992 Mobility Requirements Study determined the mix of ships, deployment modes, overall numbers, and ships' characteristics needed to support national mobility requirements. Additionally, sealift assets and

projections for FY 1999, enhanced according to current plans, size, composition, and readiness, along with acceptable risks, have provided a clear picture of sealift requirements for the next decade.

Until recently, budgetary constraints were major impediments to future sealift requirements. However, the fiscal 1993 budget that the President sent to Congress provided \$1.2 billion for sealift. Added to funding previously earmarked for sealift, the total available to build, buy, or modify will be slightly over \$3 billion.²⁵ At the time of its publication, the MRS validated the need for improvements in sealift requirements; however, the funding had yet to be programmed. Armed with this new budget, DOD and industry are prepared to move forward in revitalizing the strategic sealift program.

This increase in spending will assuredly stimulate growth within the sagging maritime industry that has long been overshadowed by the air industry. Underfunding of the shipbuilding industry has long been the subject of concern by leaders of the maritime industry. John J. Stocker, president of the Shipbuilders Council of America (SCA), making an analogy of the disparity of appropriations for strategic sealift and airlift noted that although 95 percent of all military cargo must go by sea, the Defense Department spends only five percent of its strategic lift budget on sealift. In contrast, he added, 95

percent of the budget goes for airlift, which carries only 5 percent of the cargo.²⁶

Another factor that significantly contributed to the decision to provide funds for sealift was the Fourth Report of the Commission on Merchant Marine and Defense: Recommendations, "A Plan of Action", 1989. In this report the Commission concluded, "...there are today insufficient strategic sealift resources--in terms of numbers and types of ships, trained personnel to operate them, and shipyards to maintain and replace them--to carry out the national military strategy."²⁷ While this position was shared by government, there was no agreement as to how to resolve this strategic security dilemma.

In addressing the aging of the fleet, it should be recognized that at the turn of the century the RRF is expected to have a median age of 32 years. At this point, many of the older ships will reach the end of their useful age.²⁸ This shortcoming will be addressed, in part, with the forthcoming shipbuilding program.

Congress, probably in response to congressional lobbyists, wants fast and efficient "new technology" ships that are both militarily and commercially useful. Now as the results of the MRS and lessons from the Gulf War are studied, the move is toward more maritime pre-positioned ships for the Army and RO/RO ships for fast loading and unloading of tanks, tracked vehicles, and other large outsized vehicles associated with the armored and

mechanized divisions. RO/RO's, crane ships specially modified for operations in unimproved or damaged ports, small tankers, and barge carriers necessary to operate in unpredictable regional areas of operation will be essential to the final sealift requirements. Industry analysts recognize that military demands are unique and seldom offer dual-purpose application. Furthermore, these assets are generally uneconomical for commercial use. Industry has always stressed modernization of the force. They see the current RRF as antiquated and extraordinarily expensive to maintain. With the lack of current technology, few vessels can be brought into service quickly during emergencies. Additionally, their limited commercial application does not serve to bolster the sagging merchant marine problems.

During Operations Desert Shield/Storm, approximately 10 million short tons of dry cargo were delivered to the theater of operations. This was accomplished using Maritime Pre-positioned Ships (MPS), Afloat Pre-positioned Ships (APS), Fast Sealift Ships (FSS), the charter market (U.S. and allied nation ships), and the Special Middle East Sealift Agreement (SMESA). The SMESA was especially successful because it provided the assets of seven U.S. flag shipping companies. The agreement called for 30 sailings per month to the Gulf, with transit times between 23 and 33 days. A total of 114 ships were provided by these organizations. These ships transported over 996,000 short tons

of cargo. As previously stated, strategic sealift was the workhorse of Operations Desert Shield/Storm. The combined capabilities were successful in meeting the surge of initial combat equipment, but it became evident quickly that without allied shipping support, U.S. flag shipping could not meet the total surge requirements. U.S. sealift assets were, however, successful in pipeline sustainment operations.

The MRS calls for enhancement of the RRF commensurate to plans, force composition, and readiness. This would substantially increase the number of military useful ships available for strategic sealift. Even as the MRS was being finalized, funding for long-range sealift enhancement programs had yet to be approved by Congress. However, these recommendations and the ongoing argument for a national shipbuilding effort to revitalize the maritime industrial base will now be realized in part as a result of the 1993 budget. The additional funding from Congress will allow flexibility in providing appropriate strategic sealift assets as determined by the Department of Defense. A variety of proposals are currently being reviewed to enhance the nation's strategic sealift posture. RO/RO ships ranging in size from large, medium-speed for surge requirements to smaller RO/RO ships suitable for both military and commercial use (build to charter arrangements) are being considered. These ships are high on the priority list of sealift acquisitions to satisfy vital surge/tonnage requirements.

Improvements across the board will be realized in the future given the increased funding and consensus by leaders in government and industry that immediate steps are necessary in this area to ensure national security.

While progress continues to be made in areas of sealift, much remains to be done; specifically, the decline of the U.S. Merchant Marine must be resolved. The following recommendations were made by General Hansford T. Johnson, CINCUSTRANSCOM, regarding improvements of the RRF and Merchant Marines:

- * At least 20 more RO/RO ships be added to the RRF and a comparable number of breakbulk ships be eliminated.
- * A much higher level of readiness and maintenance be required for the RRF....
- * More ships be placed in the Army afloat prepositioning program....
- * The U.S. merchant marine industry "somehow" be made healthy to ease RRF crewing shortfalls....²⁹

His comments on the RRF reflect a clear vision on improvements of the shipbuilding side of the maritime industry. However, this statement, "'Somehow' be made healthy," is indicative of challenges that government and industry face in resolving operational and philosophical issues on the decline of the Merchant Marine and reflects a sense of hopelessness in resolving the very difficult maritime issue. The situation appears to have no immediate and single solution and the United States faces a potential crisis with the merchant marine. Since 1970, the manpower base has declined by almost 60 percent to a current

level of approximately 27,000; this number is expected to further reduce by almost 50 percent by the year 2000. It is not conceivable that the United States can have a viable, responsive force to meet the needs of national security if this decline is allowed to continue.

A graphic example of the impact was witnessed during the Gulf War when requirements were such that mariners were called out of retirement to man RRF vessels. There was little difficulty in adequately crewing vessels; however, retirees (some in their seventies and two in their eighties), students, and unemployed and underemployed mariners had to be used to ensure mission accomplishment. This was clearly a success story; ironically, presence of the older mariners was beneficial in operating some of the propulsion systems with which younger crew members were unfamiliar. But the United States cannot and should not be required to rely on a catch-as-catch-can method of crewing ships during national emergencies. With the gradual improvement of the national sealift posture, there will be a point where adequate crews will be unavailable to man ships of the RRF. A projected 50% reduction in mariners by the year 2000 is clearly counter to ongoing sealift enhancement programs which will be coming to fruition toward the end of this decade. With two interdependent assets headed in opposite directions regarding capability, the United States still faces challenges in executing strategic sealift operations.

Recognizing the obvious, there have been calls to establish a number of programs to solve the personnel problem. One recommendation from Vice Admiral Francis R. Donovan, Commander, Military Sealift Command, was to set up a program to maintain skeleton crews on board reserve force ships at all times and the establishment of a Merchant Marine reserve. Mr. Robert H. Moore, Director of Transportation Policy, OSD, was even more explicit when he recommended using existing state and federal maritime academies and maritime union training facilities as the nucleus for new efforts in bolstering the merchant marine.³⁰ Regardless of what plan or combination of plans is finally agreed upon, it will take an enormous effort on the part of government and industry working together to resolve this maritime problem.

The United States can ill afford to move into the twenty-first century having adequate sealift assets yet lacking sufficient personnel to man the force. L. Edgar Prina best articulates the future of strategic sealift and all that it encompasses when he wrote, "Given the state of the U.S. Merchant Marine, sealift forces performed better in support of Desert Shield than our government had any right to expect. A long-term solution to the underlying problems will require a national effort, not just a military one."³¹ With the massive drawdown of forces, there will be an abundance of highly trained mariners who have recently separated from the military. This labor pool of former military mariners could represent a nucleus from which

a new merchant marine force could be built. There clearly will be an abundance of resources to begin a rebuilding program. What the country needs is a national resolve to take advantage of every opportunity available to build a reliable merchant marine force which meets the needs of the maritime industry.

Pre-positioning

"While fast sealift and RRF ships proved their worth, the stars of the Desert Shield buildup were the maritime prepositioning ships and the afloat prepositioning ships."³² Pre-positioning is the final component of the strategic mobility triad. It has long demonstrated its value -- most noticeably during Return of Forces to Germany (REFORGER) exercises with the efficient use of POMCUS stocks. Pre-positioning is the forward storage of equipment and supplies for combat forces; these stocks are maintained in Europe and on the Indian Ocean. As a result of the successes of pre-positioning during Operations Desert Shield/Storm, negotiations are ongoing for expanded pre-positioning in parts of the Middle East.

Pre-positioning of equipment and supplies in support of combat operations offers speed and flexibility to deploying forces. The fact that vital stocks are in place and require only that forces marry up with their authorized equipment significantly reduces the overall time required to employ combat forces and their support packages.

As fast as airlift is in responding to critical lift requirements, it is still limited in the amount of cargo delivered and it is airfield dependent. And sealift, with its ability to deliver large amounts of unit equipment and sustaining supplies, initially requires days before sufficient stocks can be delivered across the oceans to the theater of operations.

However, as efficient as pre-positioning might appear to be, it can no more stand alone as a single component to strategic mobility than airlift or sealift. It has a number of efficiencies that make it highly conducive to deployment strategies; but, by the nature of its organization and disposition, it is vulnerable and potentially ineffective as a primary strategic mobility component.

First, as international relations and interests change, authorization to store necessary stocks is, at best, tenuous. The fact that a definable threat is not everpresent makes the storage of war stocks politically sensitive. Approval today does not guarantee approval tomorrow. Secondly, National Security Strategy and National Military Strategy can easily be impeded by host nations placing restrictive conditions on the storage of wartime stocks in their countries.

A common precondition is the requirement that prepositioned assets be used only in defense of the host nation and then only after their use has been specifically approved and coordinated with the host. Depending on the stability of the government involved, our

permission to preposition is often only a bullet away from abrogation.³³

In addition to a myriad of political considerations, the one overriding fact that cannot escape close scrutiny is cost. In this age of declining budgets and changing investment patterns, it must be noted that pre-positioning is extraordinarily expensive. Climatized storage facilities for POMCUS, Maritime Pre-positioning Ships (MPS), and Afloat Pre-positioning Ships (APS) are in and of themselves very costly; but when one considers the equipment required to fill the facilities, it is easy to gain an appreciation of the enormous cost involved in pre-positioning.

A final vulnerability that is more common to host nation storage as opposed to the pre-positioned ships is the exposure to enemy pre-emptive strikes and sabotage. POMCUS sites are massive and are highly dependent on host nation security arrangements. The loss of a major site or combination of sites would seriously impact the warfighting capability of a major combat force.

Regardless of the vulnerabilities and cost, pre-positioning continues to be critical to the strategic mobility triad and the execution of National Security Strategy and National Military Strategy. The system will have to accept the inherent risk of a volatile world. Most importantly, if pre-positioning is to continue to be successful and be an integral component in the strategic mobility triad, it will require continued investment and support to keep pace with the other arms of the triad.

In assessing mobility requirements for the next decade, the 1992 Mobility Requirements Study assumes replenishment of consumed stocks, as a result of Operation Desert Shield/Storm. Also, the MRS recognizes that additional pre-positioning which might occur as a result of ongoing negotiations in the Middle East would augment, or in some cases could reduce, the mobility requirements of the study.³⁴

Intermodal Operations

Intermodal operations encompass the interrelationship of all modes of transportation in the mobility process -- that is, a total systems operation in which all modes interact. The system is comprised of facilities (such as aerial ports of embarkation, sea ports of embarkation, and depots), all forms of transportation assets, and the complete transportation infrastructure of railroads, highways, and bridges. While intermodal operations are not a separate component of the mobility triad, they are interwoven and work together to support the overall mobility process. This network of systems is an indispensable part of strategic mobility. Without an efficient intermodal network to move cargo and sustainment supplies, operations in every component of the mobility triad would quickly grind to a halt.

During the Gulf War, approximately 10 million short tons of cargo moved through U.S. ports. This cargo transited ports using

every mode of transportation the nation had to offer. It is easy to understand the interrelationship of all modes of intermodal operations and how crucial they are in the support of the strategic mobility process.

In the global transportation environment, it becomes increasingly difficult to discuss intertheater transportation and strategic mobility without recognizing the strong supporting arm of intermodal operations. Mobility support to operations in Southwest Asia was an unqualified success; however, this should not be used as a model for future operations. The successes were, in part, due to a Herculean effort that surfaced inefficiencies and re-emphasized a number of challenges to be resolved to ensure the same level of support experienced during Operations Desert Shield/Storm is available for the next national emergency.

Lessons learned from intermodal operations in support of the war effort verified findings in the MRS. The study confirmed long recognized deficiencies in the transportation network which have been addressed repeatedly by governmental transportation agencies and industry. The nation falls short in the area of installation outloading capabilities and lacks west coast container ammunition outloading capability. Additionally, considerable improvements are required at the ammunition port facility on the east coast. Finally, port operations suffer from

insufficient quantities and types of berthing, and there remains a shortage of port operators to support cargo flow.

The MRS considers and recommends the use of various modes of transportation during unit moves to ports of embarkation. The movement of unit equipment by military convoy, rail, and containerization is most advantageous for providing speed and simplicity during mobility operations. The national transportation network, however, does not adequately support major moves of this nature given its continued state of disrepair. It too requires immediate attention if successful intermodal operations are to be assured. The military infrastructures linking installations to ports of embarkation are in equal states of disrepair and require the same level of attention.

The use of containers is clearly the fastest growing phase of intermodal operations. In this system, the difficulty lies in convincing military leadership that containers are here to stay. They offer the best capability for intransit visibility of equipment -- an ability to determine the contents and location of a shipment at any time during transit. This has always been a major concern of commanders. A senior Army Transportation officer recently stated, "We need to improve on and increase the use of containers, particularly for deployment."³⁵ This is true, and at the same time, commanders must be educated on the utility of containerization to understand that it provides the

best system for rapid deployment of combat power to the theater of operations. Additionally, it will afford better intransit visibility from home station to destination.

Other problems which continue to plague the network are backlogs at depots and ports, and vehicles and railcars waiting for transfer of cargo. If the credibility of intermodalism is to be realized, improved systems must be made available to resolve these issues. These problems contribute to inefficient intermodal operations and a reluctance of commanders to trust the system.

Improved coordination and cooperation between the Department of Defense and industry will help keep pace with changes in technology and systems which streamline and enhance the efficiency of the mobility process. Advances in standardized tracking systems, communication, and containerization are the future trends that will meet the needs of a smaller and more flexible force which is required to quickly and efficiently deploy in support of worldwide contingencies.

The national security strategy calls for reduced forward stationing of forces and more reliance on a CONUS-based force. The rapid deployment of the force is dependent on a responsive and coordinated effort from a wide range of intermodal agencies. Toward this end, these agencies will be using a variety of modes of transportation that are interrelated and interdependent. The

system will work; however, any breakdown along the way will create a "domino effect" in the cycle of operations.

The importance of intermodal operations in support of strategic mobility is recognized throughout the national transportation community. Major General Richard Larson said, in a recent national transportation forum, "Intermodalism is here to stay!"³⁶ However, there is a sense of frustration by many leaders. General Duane Cassidy, USAF (Ret), former CINC USTRANSCOM, stated at a recent transportation forum, "We are in an industry [transportation] plagued and rampant with ignorance and apathy we transporters have to take charge of our industry or it won't work the next time [we have a war]."³⁷ Commanders must be educated on improved methods of transporting military cargo. Increased use of containers and improved methods of handling them at all points along the mobility chain are essential.

"The credibility of America's military deterrence, as well as our ability to fight and win should deterrence fail, require more than combat readiness and national will."³⁸ It will require a joint effort on the part of industry and government to recognize the potential shortfalls along the mobility chain and then resolve to work toward a positive end. Innovation and change are often keys to success. The United States military must come to grips with a changing transportation system that seeks to consolidate movements for more efficient operation.

Intermodalism offers commanders speed, flexibility, and accountability of cargo. The national strategic mobility capability will be ineffective without quick and efficient means to transport cargo to the ports of embarkation. There has always been a critical balance between the elements of strategic mobility: one component is dependent on the other for maximum efficiency. Intermodal operations bond the triad into a responsive and efficient mobility process.

As National Security Strategy and National Military Strategy focus on rapid deployment, intermodal operations become an integral part of the strategic mobility process. The nation must have a uniform and effective intratheater method to respond to national emergencies and transport unit equipment. Again, by all standards, support to Operations Desert Shield/Storm was a resounding success. But the nation cannot count on sacrifices and shortcuts to get the job done in the future. The United States must take full advantage of changing technologies in industry and focus on improvements in the industrial base and the national infrastructure. The MRS recommends intertheater and intratheater requirements for the future. Coupled with this, the lessons from the Gulf War, and available technology, the nation has the capability to make changes and integrate systems to ensure that intermodal operations form a solid foundation for future strategic mobility operations.

Intermodal operations can quickly become the Achilles' heel of strategic mobility operations should planners fail to recognize that they are an integral part of the strategic mobility process.

CONCLUSION

Recent historic changes in the world have placed the United States in a position that no single nation has held for over forty-five years -- world superpower. With that position comes an implied responsibility in the international security arena of peacekeeping. It is not America's intention to become the world's gendarme, but there will be an effort to mobilize the community of nations to promote world security.³⁹

With current initiatives toward peace, the United States' new national security and defense strategies reflect changes that require the capability to rapidly respond to crises evolving around the world. As such, the national strategic mobility posture must be robust and flexible enough to meet the needs of the National Security Strategy.

The 1992 Mobility Requirements Study was the first giant step towards enhancing the nation's mobility posture. The Study takes into account changing investment patterns, reduced forward-stationed forces, CONUS-based forces, and limited mobility

resources to execute national security strategy and national military strategy. Strategic mobility requirements will not be demand driven, but will be based on scenarios and accepted risks; this makes the MRS flexible enough to support different force packages configured for unique regional contingencies.

The 1993 fiscal budget that allocates \$5.1 billion to the strategic sealift program will serve to stimulate the nation's shipbuilding industry and provide an enhanced fleet of strategic sealift ships to the RRF. Mobility requirements and recommendations in the MRS were fiscally constrained; this new budget should help to build confidence and act as a catalyst in meeting national maritime objectives.

While much has been accomplished in the strategic mobility arena, the issue of the decline of the merchant marine must receive the same level of congressional and presidential support. The United States can ill afford to fund the sealift program and at the same time allow the precipitous decline of a critical part of her strategic infrastructure. The optimal solution is to rejuvenate and restore the merchant marine to a position of prominence and fund necessary programs to rebuild highways, bridges, and railroads. This alternative offers significant benefits in both peacetime and wartime and is likely the only way to assure the nation has sufficient ships, mariners, shipbuilding, and repair capability to meet national maritime needs and national objectives.⁴⁰ This also provides the

physical infrastructure required to support intermodal operations that link critical mobility components.

With the verification of mobility requirements in the MRS, the positive funding in strategic sealift, the successful first flight of the nation's newest airlifter (the C-17), and ongoing negotiations for extended pre-positioning, the United States is moving toward the twenty-first century on a positive note. Clearly all that is required and desired is not forthcoming; but in the era of budget constraints, the nation is putting together a strategic mobility capability that is both strategically prudent and fiscally responsible.

There must be a continued national resolve to move forward with industry, the DOD, and Congress to enhance the nation's strategic mobility posture if the United States is to continue to be the world's leader.

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